We claim:

1. A process for converting an alcohol-containing stream to light olefins, wherein the process comprises the steps of:
(a) providing methanol and ethanol to a reaction zone, wherein the weight ratio of methanol to ethanol is from about 1.0 to about 99.0; and
(b) contacting the methanol and the ethanol in the reaction zone with a molecular sieve catalyst composition under conditions effective to convert the methanol and ethanol to the light olefins.

2. The process of claim 1, wherein the weight ratio is from about 5.33 to about 9.33.

3. The process of claim 2, wherein the weight ratio is from about 6.33 to about 8.33.

4. The process of claim 3, wherein the weight ratio is from about 7.00 to about 7.66.

5. The process of claim 4, wherein the weight ratio is about 7.3.

6. The process of claim 1, wherein the molecular sieve catalyst composition comprises a molecular sieve selected from the group consisting of: MeAPSO, SAPO-5, SAPO-8, SAPO-11, SAPO-16, SAPO-17, SAPO-18, SAPO-20, SAPO-31, SAPO-34, SAPO-35, SAPO-36, SAPO-37, SAPO-40, SAPO-41, SAPO-42, SAPO-44, SAPO-47, SAPO-56, AEI/CHA intergrowths, metal containing forms thereof, intergrown forms thereof, and mixtures thereof.

7. The process of claim 1, wherein the methanol and ethanol are formed by contacting syngas with a synthesis catalyst under conditions effective to form the methanol and the ethanol.

8. The process of claim 7, wherein the synthesis catalyst comprises an alkali-treated metal sulfide.

9. The process of claim 1, wherein the methanol and ethanol is formed in a synthesis zone containing a methanol synthesis catalyst and an ethanol synthesis catalyst in a weight ratio of from about 1.0 to about 5.0.

10. The process of claim 9, wherein the weight ratio of methanol synthesis catalyst to ethanol synthesis catalyst is from about 2.0 to about 4.0.

11. The process of claim 1, wherein the process further comprises the step of:
(c) contacting syngas with a methanol synthesis catalyst and an ethanol synthesis catalyst under conditions effective to convert the syngas to the methanol and the ethanol.

12. The process of claim 11, wherein the methanol synthesis catalyst comprises a metal oxide.

13. The process of claim 11, wherein the ethanol synthesis catalyst comprises an alkali-treated metal sulfide.

14. The process of claim 11, wherein the process further comprises the step of:
(d) contacting a natural gas stream with oxygen in a syngas generation zone under conditions effective to convert the natural gas stream into the syngas.

15. The process of claim 1, wherein the light olefins comprise ethylene and propylene and have an ethylene to propylene weight ratio of from about 0.8 to about 2.5.

16. The process of claim 15, wherein the ethylene to propylene weight ratio is from about 1.0 to about 1.2.

17. The process of claim 1, wherein the methanol and the ethanol are directed to the reaction zone in an alcohol-containing stream comprising from about 0.1 to about 10.0 weight percent water, based on the total weight of the alcohol-containing stream.

18. A process for producing light olefins, the process comprising the steps of:
(a) contacting a syngas stream comprising carbon monoxide, carbon dioxide and hydrogen with a methanol synthesis catalyst and an ethanol synthesis catalyst in a synthesis zone under first conditions effective to form a first alcohol-containing stream comprising methanol and ethanol, wherein the first alcohol-containing stream has a methanol to ethanol weight ratio of from about 1.0 to about 99.0; and
(b) contacting at least a portion of the first alcohol-containing stream with a molecular sieve catalyst composition in a reaction zone under second conditions effective to convert the methanol and ethanol to light olefins.

19. The process of claim 18, wherein the first alcohol-containing stream further comprises water, the process further comprising the step of:
(c) removing a weight majority of the water from the first alcohol-containing stream to form a second alcohol-containing stream comprising a weight majority of the methanol and the ethanol that was present in the first alcohol-containing stream.

20. The process of claim 19, wherein the second alcohol-containing stream comprises from about 0.1 to about 10.0 weight percent water, based on the total weight of the second alcohol-containing stream.

21. The process of claim 19, wherein the process further comprises the step of:

(d) removing a weight majority of the light ends from the first alcohol-containing stream or from the second alcohol-containing stream, wherein the light ends comprises one or more of hydrogen, carbon monoxide and carbon dioxide.

22. The process of claim 18, wherein the molecular sieve catalyst composition comprises a molecular sieve selected from the group consisting of: MeAPSO, SAPO-5, SAPO-8, SAPO-11, SAPO-16, SAPO-17, SAPO-18, SAPO-20, SAPO-31, SAPO-34, SAPO-35, SAPO-36, SAPO-37, SAPO-40, SAPO-41, SAPO-42, SAPO-44, SAPO-47, SAPO-56, AEI/CHA intergrowths, metal containing forms thereof, intergrown forms thereof, and mixtures thereof.

23. The process of claim 18, wherein the methanol to ethanol weight ratio is from about 2.0 to about 50.0.

24. The process of claim 23, wherein the methanol to ethanol weight ratio is from about 6.33 to about 8.33.

25. The process of claim 24, wherein the weight ratio is from about 7.00 to about 7.66.

26. The process of claim 25, wherein the weight ratio is about 7.3.

27. The process of claim 18, wherein the first conditions comprise a reaction temperature of from about 204°C to about 260°C.

28. The process of claim 18, wherein the ethanol synthesis catalyst comprises an alkali-treated metal sulfide.

29. The process of claim 18, wherein the methanol synthesis catalyst comprises a metal oxide.

30. The process of claim 18, wherein the ethanol synthesis catalyst comprises an alkali-treated metal sulfide.

31. The process of claim 18, wherein the synthesis zone has a weight ratio of methanol synthesis catalyst to ethanol synthesis catalyst of from about 1.0 to about 5.0.

32. The process of claim 31, wherein the weight ratio of methanol synthesis catalyst to ethanol synthesis catalyst is from about 2.0 to about 4.0.

33. The process of claim 18, wherein the process further comprises the step of:
(c) contacting a natural gas stream with oxygen in a syngas generation zone under conditions effective to convert the natural gas stream into the syngas stream.

34. The process of claim 18, wherein the light olefins comprise ethylene and propylene and have an ethylene to propylene weight ratio of from about 0.8 to about 2.5.

35. The process of claim 34, wherein the light olefins comprise ethylene and propylene and have an ethylene to propylene weight ratio of from about 1.0 to about 1.2.

36. A process for producing light olefins, wherein the process comprises the steps of:
(a) contacting a syngas stream comprising carbon monoxide, carbon dioxide and hydrogen with a methanol synthesis catalyst and an ethanol synthesis catalyst in a synthesis zone under first conditions effective to form a wet alcohol-containing stream comprising methanol, ethanol and water;

(b) separating a weight majority of the water from the wet alcohol-containing stream to form a dry alcohol-containing stream comprising a weight majority of the methanol and the ethanol that was present in the wet alcohol-containing stream;

(c) contacting at least a portion of the dry alcohol-containing stream with a molecular sieve catalyst composition in a reaction system under second conditions effective to convert the methanol and ethanol to light olefins; and

(d) yielding an effluent stream comprising the light olefins from the reaction system, wherein the effluent stream has an ethylene to propylene weight ratio of from about 0.8 to about 2.5.

37. The process of claim 36, wherein the ethylene to propylene weight ratio is from about 1.0 to about 1.2.

38. The process of claim 36, wherein the molecular sieve catalyst composition comprises a molecular sieve selected from the group consisting of: MeAPSO, SAPO-5, SAPO-8, SAPO-11, SAPO-16, SAPO-17, SAPO-18, SAPO-20, SAPO-31, SAPO-34, SAPO-35, SAPO-36, SAPO-37, SAPO-40, SAPO-41, SAPO-42, SAPO-44, SAPO-47, SAPO-56, AEI/CHA intergrowths, metal containing forms thereof, intergrown forms thereof, and mixtures thereof.

39. The process of claim 36, wherein the dry alcohol-containing stream has a methanol to ethanol weight ratio of from about 1.0 to about 99.0.

40. The process of claim 39, wherein the methanol to ethanol weight ratio is from about 6.33 to about 8.33.

41. The process of claim 40, wherein the weight ratio is from about 7.00 to about 7.66.

42. The process of claim 41, wherein the weight ratio is about 7.3.

43. The process of claim 36, wherein the first conditions comprise a reaction temperature of from about 204°C to about 260°C.

44. The process of claim 36, wherein the ethanol synthesis catalyst comprises an alkali-treated metal sulfide.

45. The process of claim 36, wherein the methanol synthesis catalyst comprises a metal oxide.

46. The process of claim 45, wherein the ethanol synthesis catalyst comprises an alkali-treated metal sulfide.

47. The process of claim 36, wherein the synthesis zone has a weight ratio of methanol synthesis catalyst to ethanol synthesis catalyst of from about 1.0 to about 5.0.

48. The process of claim 47, wherein the weight ratio of methanol synthesis catalyst to ethanol synthesis catalyst is from about 2.0 to about 4.0

49. The process of claim 36, wherein the process further comprises the step of:
(e) contacting a natural gas stream with oxygen in a syngas generation zone under conditions effective to convert the natural gas stream into the syngas stream.

50. The process of claim 36, wherein the process further comprises the step of:
(e) removing a weight majority of the light ends from the wet alcohol-containing stream or the dry alcohol-containing stream, wherein the light ends comprises one or more of hydrogen, carbon monoxide and carbon dioxide.

51. The process of claim 36, wherein the dry alcohol-containing stream comprises from about 0.1 to about 10.0 weight percent water, based on the total weight of the dry alcohol-containing stream.

52. A process for producing light olefins, the process comprising the steps of:

(a) contacting a syngas stream comprising carbon monoxide, carbon dioxide and hydrogen with a methanol synthesis catalyst and an ethanol synthesis catalyst in a synthesis zone under first conditions effective to form a wet alcohol-containing stream comprising methanol, ethanol and water;

(b) separating a weight majority of the water from the wet alcohol-containing stream to form a dry alcohol-containing stream comprising a weight majority of the methanol and ethanol that was present in the wet alcohol-containing stream, wherein the dry alcohol-containing stream has a first methanol to ethanol weight ratio;

(c) contacting at least a portion of the dry alcohol-containing stream with a molecular sieve catalyst composition in a reaction zone under second conditions effective to convert the methanol and ethanol to light olefins comprising ethylene and propylene; and

(d) varying the first conditions so that the first methanol to ethanol weight ratio is changed to a second methanol to ethanol weight ratio.

53. The process of claim 52, wherein step (d) comprises changing the temperature at which the contacting in step (a) occurs.

54. The process of claim 52, wherein the first methanol to ethanol weight ratio is less than the second methanol to ethanol weight ratio.

55. The process of claim 52, wherein the first methanol to ethanol weight ratio is greater than the second methanol to ethanol weight ratio.

56. The process of claim 52, wherein step (d) is responsive to a determination that the ratio of ethylene to propylene in the light olefins should be increased or decreased.

57. The process of claim 52, wherein the first conditions comprise a reaction temperature of from about 204°C to about 260°C.

58. The process of claim 52, wherein the ethanol synthesis catalyst comprises an alkali-containing metal sulfide.

59. The process of claim 52, wherein the methanol synthesis catalyst comprises a metal oxide.

60. The process of claim 59, wherein the ethanol synthesis catalyst comprises an alkali-containing metal sulfide.

61. The process of claim 52, wherein the synthesis zone has a weight ratio of methanol synthesis catalyst to ethanol synthesis catalyst of from about 1.0 to about 5.0.

62. The process of claim 61, wherein the weight ratio of methanol synthesis catalyst to ethanol synthesis catalyst is from about 2.0 to about 4.0.

63. The process of claim 52, wherein the process further comprises the step of:
(e) contacting a natural gas stream with oxygen in a syngas generation zone under conditions effective to convert the natural gas stream into the syngas stream.

64. The process of claim 52, wherein the process further comprises the step of:
(e) removing a weight majority of the light ends from the wet alcohol-containing stream or the dry alcohol-containing stream, wherein the light

ends comprises one or more of hydrogen, carbon monoxide and carbon dioxide.

65. The process of claim 52, wherein the dry alcohol-containing stream comprises from about 0.1 to about 10.0 weight percent water, based on the total weight of the dry alcohol-containing stream.

66. A process for producing light olefins, the process comprising the steps of:

(a) contacting a first amount of a first syngas stream comprising carbon monoxide, carbon dioxide and hydrogen with a methanol synthesis catalyst in a first synthesis zone under first conditions effective to form a methanol-containing stream comprising methanol;

(b) contacting a second amount of a second syngas stream comprising carbon monoxide, carbon dioxide and hydrogen with an ethanol synthesis catalyst in a second synthesis zone under second conditions effective to form an ethanol-containing stream comprising ethanol;

(c) combining at least a portion of the methanol-containing stream with at least a portion of the ethanol-containing stream to form a combined stream having a first methanol to ethanol weight ratio;

(d) contacting at least a portion of the combined stream with a molecular sieve catalyst composition in a reaction zone under third conditions effective to convert the methanol and ethanol to light olefins comprising ethylene and propylene; and

(e) varying the second amount in order to change the first methanol to ethanol weight ratio to a second methanol to ethanol weight ratio.

67. The process of claim 66, wherein the first methanol to ethanol weight ratio is less than the second methanol to ethanol weight ratio.

68. The process of claim 66, wherein the first methanol to ethanol weight ratio is greater than the second methanol to ethanol weight ratio.

69. The process of claim 66, wherein step (e) is responsive to a determination that the ratio of ethylene to propylene in the light olefins should be increased or decreased.

70. The process of claim 66, wherein the ethanol synthesis catalyst comprises an alkali-containing metal sulfide.

71. The process of claim 66, wherein the methanol synthesis catalyst comprises a metal oxide.

72. The process of claim 71, wherein the ethanol synthesis catalyst comprises an alkali-containing metal sulfide.

73. The process of claim 66, wherein the process further comprises the steps of:

(f) contacting a natural gas stream with oxygen in a syngas generation zone under conditions effective to convert the natural gas stream into an initial syngas stream; and

(g) separating the initial syngas stream into the first syngas stream and the second syngas stream.

74. The process of claim 66, wherein the combined stream comprises from about 0.1 to about 10.0 weight percent water, based on the total weight of the combined stream.